RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: 09/490,064
Source: 1600
Date Processed by STIC: 03-17-2005

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1600

RAW SEQUENCE LISTING DATE: 03/17/2005
PATENT APPLICATION: US/09/490,064 TIME: 12:08:53

Input Set : N:\Crf3\RULE60\09490064.raw.txt
Output Set: N:\CRF4\03172005\I490064.raw

SEQUENCE LISTING

(1) GENERAL INFORMATION:

(i) APPLICANT: Knappik, Achim
Pack, Peter
Ilag, Vic
Ge, Liming
Moroney, Simon
Plueckthun, Andreas

(ii) TITLE OF INVENTION: Protein/(Poly)peptide libraries

(iii) NUMBER OF SEQUENCES: 373

(iv) CORRESPONDENCE ADDRESS:
(A) ADDRESSEE: James F. Haley, Jr., Esq. c/o Fish & Neave
(B) STREET: 1251 Avenue of the Americas
(C) CITY: New York
(D) STATE: New York
(E) COUNTRY: USA
(F) ZIP: 10021

(v) COMPUTER READABLE FORM:
(A) MEDIUM TYPE: Floppy disk
(B) COMPUTER: IBM PC compatible
(C) OPERATING SYSTEM: PC-DOS/MS-DOS
(D) SOFTWARE: PatentIn Release #1.0, Version #1.30 (EPO)

(vi) CURRENT APPLICATION DATA:
C--> **(A) APPLICATION NUMBER: US/09/490,064**
C--> **(B) FILING DATE: 24-Jan-2000**

(vii) PRIOR APPLICATION DATA:
W--> **(A) APPLICATION NUMBER: US/09/025,769**
(B) FILING DATE: 18-FEB-1998
W--> **(A) APPLICATION NUMBER: EP 95 11 3021.0**
(B) FILING DATE: 18-AUG-1995

(viii) ATTORNEY/AGENT INFORMATION:
(A) NAME: James F. Haley, Jr., Esq.
(B) REGISTRATION NUMBER: 27,794
(C) REFERENCE/DOCKET NUMBER: MORPHO/5

(ix) TELECOMMUNICATION INFORMATION:
(A) TELEPHONE: (212)596-9000
(B) TELEFAX: (212)596-9090

(2) INFORMATION FOR SEQ ID NO: 1:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS:
(D) TOPOLOGY: linear

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```
     (ii) MOLECULE TYPE: protein
     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:
      Ala Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
      1               5                  10                  15
      Gly Gly Gly Ser
                  20
 (2) INFORMATION FOR SEQ ID NO: 2:
      (i) SEQUENCE CHARACTERISTICS:
           (A) LENGTH: 82 base pairs
           (B) TYPE: nucleic acid
           (C) STRANDEDNESS: single
           (D) TOPOLOGY: linear
     (ii) MOLECULE TYPE: other nucleic acid
           (A) DESCRIPTION: /desc = "synthetic oligonucleotide"
     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:
 TCAGCGGGTG GCGGTTCTGG CGGCGGTGGG AGCGGTGGCG GTGGTTCTGG CGGTGGTGGT      60
 TCCGATATCG GTCCACGTAC GG                                               82
 (2) INFORMATION FOR SEQ ID NO: 3:
      (i) SEQUENCE CHARACTERISTICS:
           (A) LENGTH: 83 base pairs
           (B) TYPE: nucleic acid
           (C) STRANDEDNESS: single
           (D) TOPOLOGY: linear
     (ii) MOLECULE TYPE: other nucleic acid
           (A) DESCRIPTION: /desc = "synthetic oligonucleotide"
     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:
 AATTCCGTAC GTGGACCGAT ATCGGAACCA CCACCGCCAG AACCACCGCC ACCGCTCCCA      60
 CCGCCGCCAG AACCGCCACC CGC                                              83
 (2) INFORMATION FOR SEQ ID NO: 4:
      (i) SEQUENCE CHARACTERISTICS:
           (A) LENGTH: 69 base pairs
           (B) TYPE: nucleic acid
           (C) STRANDEDNESS: single
           (D) TOPOLOGY: linear
     (ii) MOLECULE TYPE: other nucleic acid
           (A) DESCRIPTION: /desc = "synthetic oligonucleotide
W--> library"
     (ix) FEATURE:
           (A) NAME/KEY: misc_feature
           (B) LOCATION:28..45
           (D) OTHER INFORMATION:/product= "6 random codons by
 trinucleotide mutagenesis (19aa, no Cys)"
     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:
 GATACGGCCG TGTATTATTG CGCGCGTNNK NNKNNKNNKN NKNNKGATTA TTGGGGCCAA      60
 GGCACCCTG                                                              69
 (2) INFORMATION FOR SEQ ID NO: 5:
      (i) SEQUENCE CHARACTERISTICS:
           (A) LENGTH: 84 base pairs
           (B) TYPE: nucleic acid
```

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```
     142           (C) STRANDEDNESS: single
     143           (D) TOPOLOGY: linear
     145      (ii) MOLECULE TYPE: other nucleic acid
     146           (A) DESCRIPTION: /desc = "synthetic oligonucleotide
W--> 147                           library"
     150      (ix) FEATURE:
     151           (A) NAME/KEY: misc_feature
     152           (B) LOCATION:28..57
     153           (D) OTHER INFORMATION:/product= "10 random codons by
     154 trinucleotide mutagenesis (19aa, no Cys)"
     156      (ix) FEATURE:
     157           (A) NAME/KEY: misc_feature
     158           (B) LOCATION:58..60
     159           (D) OTHER INFORMATION:/product= "random codon by
     160 trinucleotide mutagenesis (TTT/ATG)"
     162      (ix) FEATURE:
     163           (A) NAME/KEY: misc_feature
     164           (B) LOCATION:64..66
     165           (D) OTHER INFORMATION:/product= "random codon by
     166 trinucleotide mutagenesis (GTT/TAT)"
     169      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:
     171 GATACGGCCG TGTATTATTG CGCGCGTNNK NNKNNKNNKN NKNNKNNKNN KNNKNNKWTK      60
     173 GATKWTTGGG GCCAAGGCAC CCTG                                            84
     175 (2) INFORMATION FOR SEQ ID NO: 6:
     177      (i) SEQUENCE CHARACTERISTICS:
     178           (A) LENGTH: 21 base pairs
     179           (B) TYPE: nucleic acid
     180           (C) STRANDEDNESS: single
     181           (D) TOPOLOGY: linear
     183      (ii) MOLECULE TYPE: other nucleic acid
     184           (A) DESCRIPTION: /desc = "synthetic oligonucleotide"
     189      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:
     191 GATACGGCCG TGTATTATTG C                                              21
     193 (2) INFORMATION FOR SEQ ID NO: 7:
     195      (i) SEQUENCE CHARACTERISTICS:
     196           (A) LENGTH: 17 base pairs
     197           (B) TYPE: nucleic acid
     198           (C) STRANDEDNESS: single
     199           (D) TOPOLOGY: linear
     201      (ii) MOLECULE TYPE: other nucleic acid
     202           (A) DESCRIPTION: /desc = "synthetic oligonucleotide"
     207      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:
     209 CAGGGTGCCT TGGCCCC                                                   17
     211 (2) INFORMATION FOR SEQ ID NO: 8:
     213      (i) SEQUENCE CHARACTERISTICS:
     214           (A) LENGTH: 17 base pairs
     215           (B) TYPE: nucleic acid
     216           (C) STRANDEDNESS: single
     217           (D) TOPOLOGY: linear
```

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```
     (ii) MOLECULE TYPE: other nucleic acid
          (A) DESCRIPTION: /desc = "synthetic oligonucleotide"
     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:
GCAGAAGGCG AACGTCC                                                    17
(2) INFORMATION FOR SEQ ID NO: 9:
      (i) SEQUENCE CHARACTERISTICS:
          (A) LENGTH: 80 base pairs
          (B) TYPE: nucleic acid
          (C) STRANDEDNESS: single
          (D) TOPOLOGY: linear
     (ii) MOLECULE TYPE: other nucleic acid
          (A) DESCRIPTION: /desc = "synthetic oligonucleotide
W--> library"
     (ix) FEATURE:
          (A) NAME/KEY: misc_feature
          (B) LOCATION:39..41
          (D) OTHER INFORMATION:/product= "random codon (mixture of
GCT, CGT, CAT, TCT, TAT)"
     (ix) FEATURE:
          (A) NAME/KEY: misc_feature
          (B) LOCATION:42..53
          (D) OTHER INFORMATION:/product= "random codons by
trinucleotide mutagenesis (19 aa, no Cys)"
     (ix) FEATURE:
          (A) NAME/KEY: misc_feature
          (B) LOCATION:57..59
          (D) OTHER INFORMATION:/product= "random codon by
trinucleotide mutagenesis (19 aa, no Cys)"
     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:
TGGAAGCTGA AGACGTGGGC GTGTATTATT GCCAGCAGBV TNNKNNKNNK NNKCCGNNKT      60
TTGGCCAGGG TACGAAAGTT                                                 80
(2) INFORMATION FOR SEQ ID NO: 10:
      (i) SEQUENCE CHARACTERISTICS:
          (A) LENGTH: 18 base pairs
          (B) TYPE: nucleic acid
          (C) STRANDEDNESS: single
          (D) TOPOLOGY: linear
     (ii) MOLECULE TYPE: other nucleic acid
          (A) DESCRIPTION: /desc = "synthetic oligonucleotide"
     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:
AACTTTCGTA CCCTGGCC                                                   18
(2) INFORMATION FOR SEQ ID NO: 11:
      (i) SEQUENCE CHARACTERISTICS:
          (A) LENGTH: 108 base pairs
          (B) TYPE: nucleic acid
          (C) STRANDEDNESS: single
          (D) TOPOLOGY: linear
     (ii) MOLECULE TYPE: other nucleic acid
          (A) DESCRIPTION: /desc = "synthetic oligonucleotide
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Input Set : N:\Crf3\RULE60\09490064.raw.txt
Output Set: N:\CRF4\03172005\I490064.raw

```
W--> 295                              library"
     298     (ix) FEATURE:
     299           (A) NAME/KEY: misc_feature
     300           (B) LOCATION:21..23
     301           (D) OTHER INFORMATION:/product= "random codon by
     302 trinucleotide mutagenesis (19aa, no Cys)"
     304     (ix) FEATURE:
     305           (A) NAME/KEY: misc_feature
     306           (B) LOCATION:27..35
     307           (D) OTHER INFORMATION:/product= "random codons by
     308 trinucleotide mutagenesis (19 aa, no Cys)"
     310     (ix) FEATURE:
     311           (A) NAME/KEY: misc_feature
     312           (B) LOCATION:36..41
     313           (D) OTHER INFORMATION:/product= "random codons by mixed
     314 monomers (A/G A/C/G T)"
     316     (ix) FEATURE:
     317           (A) NAME/KEY: misc_feature
     318           (B) LOCATION:42..44
     319           (D) OTHER INFORMATION:/product= "random codon by
     320 trinucleotide mutagenesis (19aa, no Cys)"
     322     (ix) FEATURE:
     323           (A) NAME/KEY: misc_feature
     324           (B) LOCATION:48..50
     325           (D) OTHER INFORMATION:/product= "random codon by
     326 trinucleotide mutagenesis (19aa, no Cys)"
     329     (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:
     331 AGGGTCTCGA GTGGGTGAGC NNKATTNNKN NKNNKRVTRV TNNKACCNNK TATGCGGATA      60
     333 GCGTGAAAGG CCGTTTTACC ATTTCACGTG ATAATTCGAA AAACACCA                  108
     335 (2) INFORMATION FOR SEQ ID NO: 12:
     337      (i) SEQUENCE CHARACTERISTICS:
     338           (A) LENGTH: 105 base pairs
     339           (B) TYPE: nucleic acid
     340           (C) STRANDEDNESS: single
     341           (D) TOPOLOGY: linear
     343     (ii) MOLECULE TYPE: other nucleic acid
     344           (A) DESCRIPTION: /desc = "synthetic oligonucleotide
W--> 345                              library"
     348     (ix) FEATURE:
     349           (A) NAME/KEY: misc_feature
     350           (B) LOCATION:21..23
     351           (D) OTHER INFORMATION:/product= "random codon by
     352 trinucleotide mutagenesis (19aa, no Cys)"
     354     (ix) FEATURE:
     355           (A) NAME/KEY: misc_feature
     356           (B) LOCATION:27..32
     357           (D) OTHER INFORMATION:/product= "random codons by
     358 trinucleotide mutagenesis (19aa, no Cys)"
     360     (ix) FEATURE:
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VERIFICATION SUMMARY DATE: 03/17/2005
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Input Set : **N:\Crf3\RULE60\09490064.raw.txt**
Output Set: **N:\CRF4\03172005\I490064.raw**

L:32 M:220 C: Keyword misspelled or invalid format, [(A) APPLICATION NUMBER:]
L:33 M:220 C: Keyword misspelled or invalid format, [(B) FILING DATE:]
L:38 M:238 W: Alpha Fields not Ordered, Reordered [(A) APPLICATION NUMBER:] of (1)(vii)
L:1569 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:44
L:1573 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:44
L:1577 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:44
L:1581 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:44
L:1585 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:44
L:1589 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:44
L:1593 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:44
L:1656 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:46
L:1660 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:46
L:1664 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:46
L:1668 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:46
L:1672 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:46
L:1676 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:46
L:1680 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:46
L:1736 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:48
L:1740 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:48
L:1744 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:48
L:1748 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:48
L:1752 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:48
L:1756 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:48
L:1760 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:48
L:1764 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:48
L:1823 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:50
L:1827 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:50
L:1831 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:50
L:1835 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:50
L:1839 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:50
L:1843 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:50
L:1847 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:50
L:1903 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:52
L:1907 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:52
L:1911 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:52
L:1915 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:52
L:1919 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:52
L:1923 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:52
L:1927 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:52
L:1983 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:54
L:1987 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:54
L:1991 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:54
L:1995 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:54
L:1999 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:54
L:2003 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:54
L:2007 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:54
L:2063 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:56
L:2067 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:56

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Input Set : **N:\Crf3\RULE60\09490064.raw.txt**
Output Set: **N:\CRF4\03172005\I490064.raw**

L:2071 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:56
L:2075 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:56
L:2079 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:56
L:2083 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:56
L:2087 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:56
L:2091 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:56